ASD Weekly Highlights for the Week Ending 7-July-2006

Operations

2006 07-01 to 07-08

Request Type	Hours	Percent Beam Activity
Machine Studies (R & D)	12.00	25.00
Machine Studies (Remedial)	12.00	25.00
Testing (Machine on, no Beam, e.g. RF Processing)	24.00	50.00
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Total Beam Activity Requested	**48.00**	

Recorded Activity Type	Hours	Percent of Total
Beam Time (delivered to Target)	24.70	14.70
Machine Startup (from a Planned Shutdown)	54.60	32.50
Machine Studies (R&D)	5.60	3.33
Planned Shutdown (no Beam, no Testing)	1.00	.60
Testing (Machine on, no Beam, e.g. RF Processing)	30.90	18.39
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Total Activity Recorded	**116.80**	
Total Downtime Recorded	**51.20**	**67.46**
Total	**168.00**	

Equipment Breakdown by Group

Group	Hours	Percent of Breakdown Total
Controls	6.00	11.72
Cooling Systems - Accelerator, Target	14.50	28.32
Diagnostics	.50	.98
Electrical Systems	3.20	6.25
Machine Protection System	4.20	8.20
Magnets	1.00	1.95
RF Systems	21.30	41.60

Accelerator Physics

- Preparations were made for the accelerator turn on, including setup of a constant longitudinal focusing lattice, which is hoped to provide better longitudinal beam capture.

- The beam was brought on through the linac. This included careful setup of the RF cavities, trajectory correction, and attempts at matching from the MEBT to DTL, DTL to CCL and SCL to HEBT transitions. The operators were trained in the use of the RF setup applications.

RF Systems

- A fiber optic cable failed in the CCL2 transmitter resulting in asynchronous behavior of the LLRF and HPRF systems. The fiber was replaced and proper operation restored.

- The Ring RF system has been checked out and operated successfully in preparation for beam operation of the accumulator ring.

- The Ring LLRF test stand has been set up in the CLO LLRF laboratory. Chip Piller is using the test stand to support Ring LLRF software development.

- The Linac LLRF software upgrade has been tested successfully in the MEBT, NCL and SCL and is ready for deployment.

- A bid has been received for production of spare klystrons for the superconducting Linac. The purchase order will be issued later this month.

- The group has been providing support for low-power measurements and inspections in the superconducting Linac.

- The two spare 3-hole klystron tanks are due at the end of July. The vendor indicated some subcontractor delays, but expects to hold the planned shipping date.

Ion Source

- Ion Source Group Highlights for the week ending 7-7-06:

- A laser tracker team has measured the four LEBT fiducials in 25 positions while we recorded the readings on the LEBT position indicators. The data analysis will show whether the new indicator mounts achieve the desired 0.1 mm accuracy.

- An ion source has been mounted, conditioned and cesiated. It keeps delivering ~20 mA since beam was extracted early in the week.

Instrumentation and Controls

- The week was spent supporting operations by dealing with a number of minor issues and “glitches.”

- The Diagnostics Technical Team replaced the electron detector at Ring B11 and terminated the cables at 50 ohms until they are ready to be used. Loads and terminations were installed on the beam in gap kicker in the ring service building to allow AP to look at signals from the "Beam-In-Gap" instrument. Work continued on an electronics chassis for the ion source and a high power amplifier. Electron collector amplifiers for the SCL were tested.

- Having extensively tested the new LLRF IOC sequences and HOM waveform viewer in the laboratory, testing began on the linac itself. These improvements are all based upon operating experience and are aimed at ensuring safe operation of the linac They include stopping the RF on perceived HOM issues, an RF ramp-up that stops when a vacuum excursion is observed or when there is no observed cavity amplitude rise. A bug fix to prevent the drive staying on when the HPRF trips is also implemented. Tests until now have been successful. Inexplicably, this work has been deferred "to ensure safe operation of the linac."

- At HFIR, a flow calculation setup for the HFIR Cold Source was demonstrated today. The computer receives pressure and temperature signals in the way the system will deliver it, calculates the three flows needed, and logs the flow data for future use. The demonstration uses a Linux box, but the software is being ported to a Windows machine for HFIR use.

- A meeting was held to formulate a path forward for archiving. Available capacity is largely used and it will not be possible to complete the current run (particularly if it continues into August) without a data management strategy. The data is dominated by data, in particular waveform data, from BPMs, BLMs and other instruments. Homework was assigned to draw up "straw-man" proposals for both a sensible archiving strategy for beam instruments and a management approach for the data. It was agreed that responsibility for the Archiver belongs with the Controls Group, but both cooperation and work will be required from the Diagnostics PIs in the Physics Group, and additional resources will have to be found for the Controls Group. The cost of upgrading the present system to its full capacity is ~$50K.

- Work proceeded on BL-4 IPPS certification and as-built drawings.

Diagnostics

- Wire Scanners: All newly installed wire scanners in the HEBT with the exception of HEBT-WS-01 work. They are tested with beam.

- Laser system: SCL laser profile monitor sends about 78% beam to the end of the transport-line. New cameras work. We had to remove 7 out of 9 in-tunnel laser collector amplifiers due to radiation damage from SCL. Total integrated radiation dose during the production run in SCL, cryo-module 11 is about 5000 Rads in one week. This dose is at the BLM which is the same distance as the amplifiers from the cryo-modules.

- We need to replace 4 BLMs or fix connectors in SCL tunnel. All other systems are operational for the July run.

SRF Facility

Project Upgrade

Survey and Alignment

- Linac
  S & A continued processing the alignment data collected during the June maintenance period. S & A measured a sampling of ~21% of the available component fiducials starting at the FE including all components through to the Linac Dump Quadrupoles. A report on the state of alignment is about a week away.

- RTBT
  Completed the photographing of all Hebt/Ring/RTBT ceiling cracks and crane rails supports. These pictures will be compared with those taken both six months and one year previous. Actual processing has not yet begun.

  Completed mapping RTBT Floor deformation. A report was sent to interested parties last week. In the event that anyone else would like a copy of the report they should contact Joe Error.

- Drawing/Data Base Update
  S & A has made great progress in updating installation drawings of the entire site. Although a significant amount of work still needs to be done, we are about a month away from placing a rather large drawing base into Project Wise.

- Target
  BL5 & BL7: Laid out sample centers (outside of building) and two reference points.
  BL6: Marked elevation for second concrete pour.
  BL11: Verified current reference targets and installed/aligned translation stages on monolith.

Cryo Systems

Mechanical Systems

Water

Vacuum

Mechanical

Electrical Systems